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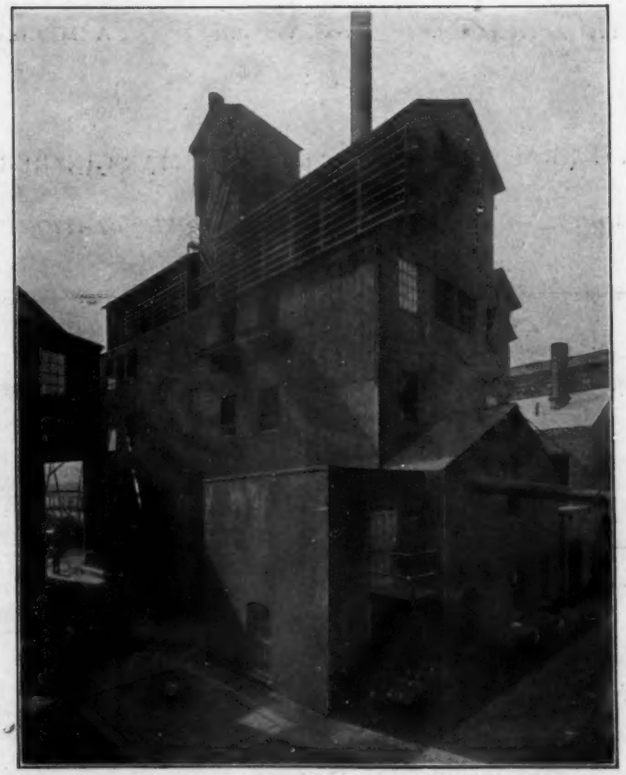

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# Gas Developments and Responsibilities

## Utility industry afforded full protection of investors

*Henry M. Brundage*

Vice-President Consolidated Gas Co., New York City

PUBLIC utilities are agencies which the public has demanded be established to do something necessary, something of vital importance to it, which could not be otherwise done so well or so economically. In these agencies, the public retains an interest, and over them it retains control; so that public utilities, in effect, are partnerships between the public and groups of business men; these partnerships constituting quasi-public bodies which the law says are affected with a public interest.

Gas and electric utilities are of prime importance in our homes and businesses under modern conditions of living. I assume your city, like all others in the anthracite district, suffered certain hardships as a result of the late unlamented coal strike. If it hadn't been for gas service, those hardships would have been vastly augmented. The use of gas in the homes alone in New York State last year took the place of six million tons of hard coal. The fact that gas was obtainable, kept homes comfortable, put meals on the table and enabled business organizations to continue operations when, if the usual supply of coal had had to be depended on, there would have been, not merely inconvenience and temporary discomfort, but widespread and serious hardship and probably severe suffering. For a considerable period during the coal strike our company and other companies in the metropolitan district, and I am sure elsewhere, did the impossible. They produced more gas, because it was needed, than the rated capacity of their equipment. Machines, like men, can do a little better than their best, in an emergency. I cite this situation, still fresh in the minds of all of us, as an illustration of how closely public utilities touch our lives.

### Growth of the Gas Industry

Up to 1882, virtually all the gas manufactured was used for lighting, although the gas stove had appeared a few years earlier. In 1882, when the first electric central station was started in New York City, the electric light started its remarkable career, and people everywhere predicted the ruin of the gas business.

Instead of failing, gas men began to work for a new market, and from a lighting medium, manufactured gas became a new fuel. How successful was this change is indicated by the steady growth of the industry. Four times as much gas is now being consumed as was consumed in 1901, and New York State alone is using as much gas as the whole country used then.

### Competition

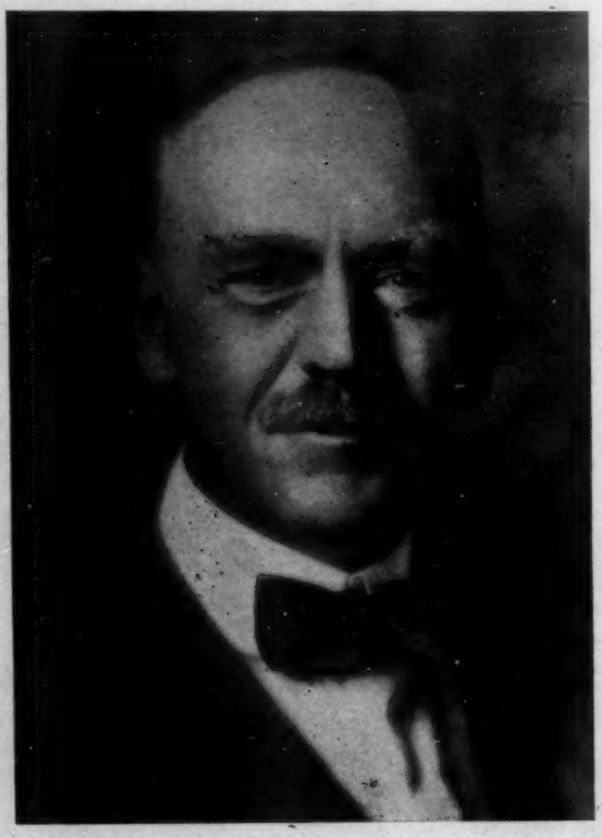
Undoubtedly, gas companies are and should be monopolies of the business of selling gas in the territories in which they operate. They do, however, compete with substitutes. Gas for heating and cooking competes with coal and oil. As an illuminant, it competes with electricity, kerosene, acetylene and candles. Central station electric lighting competes with gas and block lighting. Nevertheless, it cannot be denied that this industry is a natural monopoly. The word "monopoly" has an unpleasant sound in the public ear. The people's hatred of monopoly is hereditary. It was burned into their ancestors from the time of Queen Elizabeth, when

*Delivered at the March Meeting, Sales Division, New England Gas Association.

Court favorites were granted monopolies of the necessaries of life, and grossly abused their privileges by increasing prices to such an extent as to impoverish the people.

In the early stages of development of public utilities, municipal and state authorities sought to check monopoly by short term franchises and by granting franchises to competing companies. Short term franchises proved to be unacceptable because investors were not willing to pay for construction which would revert to the municipalities before the investment could be amortized. If companies charged rates high enough to pay a return on the investment and to amortize their property within the time limit of their franchise, the rates would have to be so high that the product could be sold only to a limited extent. Competition has proved to be an unacceptable antidote for monopoly. When franchises are granted to competing companies, duplicate conduits are laid in the streets, which are constantly torn up. The capital investment necessary to supply the territory is twice what it should be.

When regulatory commissions were established, they were quick to recognize that regulation is the best substitute for competition in preventing extortionate rates.



*Henry M. Brundage*

### Gas for House Heating

One of the most insidious and dangerous results of being forced to wide use of soft coal has been the pall of smoke which has hung over our cities and towns. We have endured it and cursed; yet no one will ever be able to state in precise terms what it has cost in damage to goods and damage to health. In New York City, our Health Commissioner has held it responsible for what has amounted to an epidemic of nose and throat and lung diseases. Merchants in our great mid-town shopping district have made estimates of goods losses and spoilage varying from one to ten million dollars. We are moving into a day when such things will be impossible, because the business of manufacturing and furnishing gas, a clean, smokeless fuel, will have so developed that its use—on a basis of dollars and cents value and health value—will be universal.

### A Glance into the Future

Looking into the future, I visualize great central gas producing plants scattered all over the country, at strategic points. Their mains will follow highways from community to community, and a coal-burning factory with smoking stacks will be considered an offence against the public, while homes where coal has to be shoveled and ashes have to be carried out to the dump will be considered the abode of the unenlightened and the wasteful. Coal will be utilized scientifically in the great central plants as raw fuel, out of which will come a finished fuel suitable for use by civilized people, with all its by-products, oil, tar, ammonia, coke, valuable for use in thousands of ways in business, the arts and sciences.

We are already on our way to this, not, perhaps, in the immediate future, but in the not too distant future, because it is the course of progress and the public utility industry, as a business and as an agency of public service, can not stand still. Relying on the brains of scientists and the initiative of American gas men, it never has stood still. Be assured you are making your life's endeavor in an industry which, so far as human foresight can determine, is to endure.

### The Ripley Matter

Recently I have been engaged in a somewhat controversial passage with a fellow-townsman of yours. I say fellow-townsman because we, who do not enjoy the privilege of living here in Boston, regard Cambridge and Harvard University as a part of Boston. It is assumed that a number of gentlemen here gathered expect me to say a word respecting this controversy.

Dr. Ripley, who, as you know, is a professor at Harvard University, came down to New York last October and delivered a speech before the Acadamy of Political Science. This he devoted to a topic which has aroused a great deal of popular attention, namely, the dangers of non-voting stock in modern corporate financing, as typified by the recent Dodge Bros. and National Cash Register Company financing. The attack launched in his Academy ad-

dress he has amplified and intensified in the January issue of your Atlantic Monthly. In that article, he refers to me as "a certain type of self-appointed spokesman of the quasi-public companies" whose crazy bone appears to have been hit by his remarks. Having been debarred from sojourning in the realms of higher education in which the learned professor moves, the portion of one's anatomy to which he refers has always been known to me as "the funny bone." By whatever designation it is known, you may be sure that it was not struck by the professor's observations. Most, if not all, of you have presumably read his attack, and are familiar with the argument which he presents. It has merit, as applied to certain kinds of organizations. It is not amiss, however, to call your attention to the fact that a number of equally able men, whose lives have been spent in the study of finance and economics, have already taken issue with him. The main contention which they have advanced in respect of, say, the Dodge Brothers financing, may be summarized in a question somewhat as follows:

Was it better, from the standpoint of public interest, for the negotiators of that financing to do what they did do, which left in their hands the control of the company, and therefore imposed upon them responsibility for its success; or to have arranged a different method of financing under which control would have been retained by all stockholders, under which plan the negotiators would, subsequent to the disposition of the stock, be released from any responsibility for the company's future operations?

### A Debatable Question

I am not qualified to answer the question. It has been raised by minds much abler than mine can ever hope to be, but it is apparent that it is a debatable question in respect of which a great deal may be said on both sides. In so far as the debate applies to industrial organizations, I leave it with you for consideration. In so far as the professor's attack refers to public utilities subject to state regulation, he is utterly wrong, as was forcibly pointed out in my address before the Bankers Institute of Utica, N. Y., on November 12, 1925. His attack, in so far as it refers to regulated utilities, reminds me of the attitude which, it might be assumed, is held by a cloistered nun, sheltered from the daily activities of this mundane sphere, removed from contact with current events, who, by reason of such isolation, lets the parade go by without realizing that it has passed.

Dr. Ripley, with one of those sweeping waves of the hand, in which academic critics of business sometimes indulge, characterized all public utilities (except railroads) as conducted without regard to adequate protection of the stockholders. Professor Ripley's relations to railroad regulation are deemed by him to be such that he modestly leaves the railroads out of the category of offenders.

### Full Protection of Investor

As an executive officer of one of the largest operating utilities in the United States, the Consolidated Gas Company of New York, I felt aggrieved by what I regard as Dr. Ripley's uninformed statement of the status of the investor in utilities generally. I believe firmly that in no field of business enterprise is the money of the investor so adequately and fully protected as in a public utility, operating under conditions, such as my company, and the companies which many of you men represent, operate.

When an investor buys stock in the Consolidated Gas Company, he knows just what he is getting for his money. The operations of the company are subjected not merely to the fullest publicity, but to the constant scrutiny of the Public Service Commission of the State of New York, of which the members are consistently men of a high standard of ability and training, and of the large staff of engineers, accountants and lawyers employed by that commission in the discharge of their function of supervising the operations of public utilities in the State of New York. The investor knows that the present value of the properties of the Consolidated Gas Company is considerably in excess of the market value of its outstanding securities. He knows that the company cannot issue additional stock or bonds except with the approval of the Public Service Commission and that proceeds of such securities as are sold, are actually invested in property to be used in serving the customers of the company. He knows that the accounts of the company are kept under a uniform system of accounts, prescribed by the Public Service Commission of the State of New York, and that these accounts are subject to recurrent check by the auditors and engineers of said commission. He knows, furthermore, that the courts are protecting his company in the right to charge such rates as may be necessary to earn a reasonable return upon the property actually employed in the service of the public.

It is difficult to conceive a situation where the investor is less open to prejudicial action by the directors of a corporation than in the case of an operating utility in the State of New York.

### Fear of Governmental Supervision

Holding this view strongly, I took occasion to protest with some vehemence against Dr. Ripley's casual and thoughtless inclusion of public utility companies generally in his criticism of the present trend of corporate financing. Subsequently Dr. Ripley published the aforesaid article which has attracted a great deal of attention. In this article he attributes the indignation which I expressed in my Utica address that a man of his standing should thoughtlessly include operating public utilities in his casual list of industrial enterprises in which the stockholder is not adequately protected, to a fear of the application of governmental supervision to the utilities. If Dr. Ripley, as an occasional employee of the Interstate Commerce Commission, would take the time to come to New York and study the operation of the supervisory functions of our Public Service Commission, he would certainly feel that governmental regulation is being applied to our oper-

ating utilities, and that the rights of the stockholders are at least as fully protected as the rights of the investors in our interstate railroads. I say without hesitation that public regulation and supervision, in so far as it protects the investor, is much more highly developed in states like New York and Massachusetts, through their regulatory commissions, than in the operations of the Interstate Commerce Commission from which Dr. Ripley draws his text.

As a matter of fact, Dr. Ripley does make clear in his article in the Atlantic Monthly that his concern is not for the investor in operating utility companies but in the multiplication of holding companies in the public utility field, for which he seems to have a vaguely felt and cloudily expressed disapproval, as prejudicial to investors. Yet he tells us proudly, in this same article, of his perspicacity in having become a stockholder in the Electric Bond and Share Company, which company may be said to have had a rather direct relation to the growth of the holding company idea as applied to the securities of operating utilities in the United States.

### Drifting Away from a Tradition

When one analyzes Dr. Ripley's Atlantic Monthly article, one comes rather to the feeling that the fundamental source of the good professor's concern is that we are drifting away from that happy situation, which we saw in our youth, when the people who owned the mill or the shop were genuine proprietors, and personally supervised the operations of their enterprises. Perhaps more in New England than in any part of the country the tradition was that some member of the family which owned the enterprise should be the active manager of it. That this condition is changing we all recognize. I find myself, however, unable to share with Dr. Ripley an alarm fundamentally based on the fact that the one time aristocracy of stock ownership is being broadened into a democracy of stock ownership. In his article in the Atlantic Monthly, he says, rather resentfully:

"The total number of stockholders in all sorts of concerns has almost doubled since 1900, rising to an aggregate of 14,423,000 in 1923. These shareholders now possess over $70,000,000,000 worth of stock at par, in the showing of the Federal income tax returns. Such possession used to be confined to the wealthy and the well-to-do class. Now it comprehends the small householder and large number of wage-earners. The former concentration of wealth is now yielding place to so wide a diffusion as to call for public recognition by way of legislation or oversight."

By some strange confusion of mind, the good doctor characterizes this trend as "the rape of the public stockholder."

### Character of Men

There is a further factor, namely, the character of the men who, as officers and directors of our great operating utilities, stand as trustees, both for the investor and for the public as customers.

As an officer and active member of a number of associations of public utility executives, I have had many years of continuous contact with the men who are charged with the responsibility of conducting our operating utilities in the interest of the investor and the consumer. I possibly lack Dr. Ripley's academic pessimism about human nature. It is my feeling, however, that our utilities are operated today with just as scrupulous a regard for the rights of the investor as in the days when the man, or a group of men, owned actual control of a majority of the stock of the operating utility, and could dictate to the directors and officers how it was to be conducted.

If Dr. Ripley had taken a little time to study the status of the investor in companies like ours, I feel sure he would have used us in his speech and in his article in a different way. Instead of thoughtlessly herding us among the goats on his landscape, he would have used the operating utility, under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public service commission supervision, as the bright and shining example of how to obtain maximum protection for the investor. And this without reference to whether each and every stockholder has or does not have that symbol of ancient right, the privilege of signing a proxy for use at the annual meeting of the company.

### Importance of Accounting

All of the many problems and operations of a gas utility necessarily present themselves to my mind through an accountant's eyes. The advances which have been made in utility accounting during my lifetime have been truly remarkable. The establishment by public service commissions throughout the country of accounting systems which were made obligatory upon the companies in the respective states, opened wide the door of opportunity to the accounting fraternity. Since that epoch, the developments have been so numerous as to require an entire evening's discourse to even touch the high spots. I shall not attempt it on this occasion. The last and best step thus far taken was to bring about, through the joint efforts of the American Gas Association and the National Electric Light Association, the promulgation by the National Association of Railroad and Utilities Commissioners of a standard classification of accounts for gas and electric companies, which has been adopted by some twenty-three states and by numerous companies outside of those states where the commissions were not clothed with authority to enforce the prescribed classification. This move has been a boon to commissions, operating companies, investors, bankers and the public as well. If time sufficed, it would be a pleasurable experience to recite some of the activities of the national association, of which we all are, or ought to be members, and particularly refer to the tremendous activity of the accounting section. That section seems to have grown beyond the rather limited scope which it was designed to fulfill, and during the last few years has devoted a large portion of its available time to a study of relations with customers. This is an unlimited field. It has been well said that "man's work is from sun to sun, but woman's work is never done." And the work of a utility in establishing and maintaining proper relations with its customers is, due to the ever-changing personnel, a perpetual job.

# Rehabilitating the Small Gas Plant*

## Overcoming poor management, loss of good will, poor service and improper rates

*Sam W. Brown*

Secretary, Florence Gas & Fuel Co., Florence, S. C.

IN the first place, small gas plants are not unusual. Indeed, it is reported that 60 per cent of all the gas properties in the United States, not included in syndicate operations, have less than 2,000 gas meters. And, again, "Small Gas Plants" present problems incident only to themselves. And yet, again, "Small Gas Plants" that need rehabilitating must be drawn from the above 60 per cent, so that, by a process of elimination, it is safe to say that the gas properties, needing this application of our profession are rather few, but, and this is of prime importance and well to remember, only a few of us, in our ordinary experience and span of life, are permitted to undertake the process and problem of rehabilitating the small gas plant.

It is a rather simple and pleasant matter for the operating head of a larger company, or one having more than 2,000 meters, to look lightly upon the small property and to view the matter as one involving no problems or difficulties. Indeed, the writer has often heard operators of larger properties say that managers of small gas plants need not be highly trained, either from the executive or engineering viewpoint. But here arises a question at once. Where, as a general proposition, have the successful operators of larger properties come from? Where do the best plans for promoting growth in our business come from? From no other place than from the small gas company, where, out of sheer necessity, brains must be worked overtime in making both ends meet.

### Causes of Trouble

But, getting back to our topic, I trust any remarks that may be sonsidered personal will be pardoned, and yet it must be realized at once that a topic such as the one assigned to me must, to a very large extent, be a recital of experiences. And right here let us set up the following situation: Suppose you had been appointed a receiver, under proper court order,

*Delivered at the 1926 Annual Meeting of the Southern Gas Association.

for a defunct small gas company. The first question to arise is, "Why a Receiver?" The natural answer is, "Financial Embarrassment." And why this condition? There are generally several reasons and among them the most prominent are:

Poor management or a poor manager in the sense of ability.

Loss of good will; poor service, contributing directly to the former.

An improper rate structure.

Good management can be construed in a host of ways. It is not necessary that a manager be an expert machinist, a good stoker or water gas maker or an expert pipe fitter. It does require one to know when manufacturing results are in line, when a job of piping is properly completed, and, in the case of a small gas company, it is necessary for the manager to know how to sense public opinion towards the gas company. The greatest task before the manager of a small gas company, or one that needs upbuilding, is to be able to co-ordinate the working forces, especially when in contact with the public.

### The First Step

From the writer's standpoint, the very first essential in rehabilitating the small gas company is to make a very frank statement to the public, through the newspapers, and to your customers in particular, through a letter to the effect that you, as manager, realize that the service rendered has not been up to par. Then an equally frank statement must be made, telling the public and your customers that every reasonable effort will be made to remedy conditions. But, and this is important, do not make any promises. Conditions that make it necessary to rebuild a small gas company are generally such that the dreams and ambitions of the average ambitious gas manager will often be set at naught.

The next step should be to give proper attention to your working force. How many clockworkers have you on the payroll? Is your working force out of balance? Have you too many men in the plant and too few on the distribution side? Are your men properly trained so that they can fit in any niche?

In a small plant the foreman at the works should be able to take his turn at operating any part of the plant. All the workmen in the distribution end should be able to run mains, services, set and read meters, connect and adjust appliances, and answer complaints. To be sure, this is a pretty large order, but it is an essential qualification in a small property, where specialization cannot be indulged in.

### Simplifying Office Routine

In the office all records and methods of keeping the same should be simplified to the last degree. This done, no small gas company should require more than one clerical assistant. At a certain point a duplicating or addressing machine of some character will prove a profitable investment.

The operating manager of a small gas company should be able to single out from his assistants those who might be capable of doing a particular character of work better than others, but at different times every workman should have some opportunity to handle orders other than those for which he might be best fitted. This method keeps all workmen up to date in handling different and new types of work.

In the small gas company, it is the opinion of the writer, it pays to get experienced men and then adapt them to your method of handling work. The manager of a small property has other and more important things to do than to undertake a thorough training of workmen.

### An Instance of a Trouble Remedied

It is assumed that the manager in question has his ear to the ground and is becoming familiar with the various types of complaints needing attention. In one case with which the writer was familiar a veritable storm was waged each month over unusual gas bills. Investigation showed a peculiar trend. Many of those complaining would show up only each third or fourth month. On going into the matter thoroughly it was found that the meter reader had defective eyesight, unknown to himself, but, after securing properly fitted glasses, the number of complaints along this line became nil. This led to a method of making a closer check-up on the meter reader. When the slightest irregularity appeared in an index, the reading would at once be checked by a different person before rendering or making up a bill. If, on the second reading, the first has been verified, a third inspection is at once made to locate any meter leaks or careless use of gas. If nothing unusual appears, the bill is made out and stamped: "This meter reading and connections have been verified and found correct." Troubles of this character were at a minimum shortly afterward and the remark was soon heard, "People are now getting a square deal."

### Checking Up on Revenue

In another instance where the writer was interested it was quite apparent that gas revenues were not in keeping with the amount of gas sold. In other words, old "unaccounted for" was shouting, "here I am." The matter of raw materials was first given attention and it was found that, considering the size of the property in question, coke, coal and gas oil results were within reason. There were no adequate meter records, the prover was scattered in many directions and no check-up had been made in years to account for meters. There had never been any systematic testing of meters. To clear up this problem required more difficult work.

First, an effort was made to ascertain how many meters had been purchased. On getting this information it was found that nearly 200 meters were missing. The fire department records were searched and about 15 meters located as "burned." Companies repairing meters were consulted and about 50 more located as "condemned." A systematic house-to-

house canvass was then made and nearly the entire balance found. Many of these meters had been set for nearly three years without the customers ever getting a bill and, when these were rendered, the usual storm resulted. A firm position was maintained in this matter. Revenues then became more nearly normal and the "unaccounted for" was within reasonable limits. Any number of instances similar to the above could be recited, but the above will serve to illustrate what the writer means by poor management in the sense of ability.

### Running the New Business Work

The new business work of a small gas company that needs upbuilding should be pushed only after you are satisfied that your service is right, or nearly so. No campaigns, contemplating any great financial expenditure, should be undertaken at the start. Rather, a campaign to see that the present installed appliances are functioning properly. While this is being done, note can be made of apparently worn-out appliances and a serious effort made to replace the same, allowances being made for the old appliances. The reductions made in this direction is money well spent.

Other campaigns can then be inaugurated such as offering chinaware, silverware, etc., and all of them are helpful. One of the best plans tried by the writer, some time back, in an effort to get new customers, was that of putting a banner on a circus elephant, offering a $10 goldpiece to any new customer buying a new range on circus day. The manager of a small property always has opportunities of this character.

Your salesman must be well grounded in the business, courteous, affable and able to make minor adjustments on the spot. But, far more important, he must realize that he is a buffer between the company and its customers. Many friends can be made for the company at this point.

### Overcoming Loss of Good Will

To overcome the loss of good will is another matter. It is rather nerve-racking to arrive in a small town to take over a defunct utility and find that no one has a good word for your company. It is quite interesting to have the Mayor and Council wait on you and tell you how your business should be run. It is still more interesting to have the State Commission step in and tell you all about pressure conditions and heat units and then tell you how much you should earn on your money. The writer knows of one commission, having seven members and an engineer, none of whom live in a town having gas service. And yet this same commission tells trained gas men all about it, how to do this and how not to do that, how low your operating costs should be and a host of other things, but the one that is vital to all of us—dividends.

But, far more interesting than all of the above, is to receive delegations from sewing circles, Missionary societies, luncheon clubs, Stitch and Chat clubs, and many of a kindred nature, demanding better service. Here is where diplomacy must be used and danger of making promises be kept in mind. The writer must not be misunderstood on the matter of service. It is all-important. But when you are taking over a disrupted organization, no promises should be made that will embarrass one later on. It is a different matter to express regrets, assuring your complainants that every honest effort will be made to straighten matters out as rapidly as possible. A strong impression can be made at this point by being frank and, if necessary, showing those in authority just how your revenues compare with expenses. Getting the good will of the public is the most desirable part of our profession. Facts always speak louder than words and it will not be long before the public at large realizes that something is happening to their gas company, that service is better, complaints are fewer and attended to with courtesy and promptness, and then gas bills, large or small, will be paid with more grace.

### The Effects of Such Effort

Adopting the above principles, visualize if you will just what can happen to a small company. In four years' time the output has increased from 15,000 annually to 27,000; the number of customers from 550 to 920; from the position of not being able to pay interest on a relatively small bond issue to having available for this purpose nearly $12,000. These figures are not ideal, by any means, but simply serve to indicate that well-tried principles are always reliable.

### The Rate Question

The tendency of commissions to adopt a hit or miss plan in establishing rates is fast disappearing. The highest courts in the country have ruled any number of times, in as many different ways, that utilities are entitled to a fair return. This being the case, and assuming that you have brought your property to a point where no great or unjust criticism can be made of your service, the proper thing to do is to go after a rate structure that will give you the necessary returns. Accept no compromise. Adopt the old adage, "Be sure you are right, then go ahead." Too many times in the life of a small gas company the local management is afraid of a just fight for that which rightfully belongs to it.

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## PRACTICALLY NO LOSS TO INVESTORS IN UTILITY SECURITIES

The investment record of public utilities as gathered by the New York Evening Post shows the smallest percentage of loss of any form of general investment.

The risk of receiverships per annum per $100 of securities outstanding is set forth by the Post as follows:

| | |
|---|---|
| For industrials | $2.07 |
| For railroads | 1.84 |
| For public utilities | .37 |

This last figure is only 5 cents above the National banks.

# Sampling Gas*

## Description of sampling apparatus and control devices

*Dr. F. Pranz*

IN carrying out investigations on gas making installations, as well as in exercising effective control over these operations, whether they are retort installations for coal gas manufacture, water gas generators or producers, the determination of the properties of the gas always offers certain difficulties. Analyses which are carried out on separate samples of the manufactured gas yield results which are not entirely satisfactory. For they tell the character of the gas at any moment in the gas-making progress and consequently they are dependent on the momentary variations that take place in the operating conditions.

Then, again, carrying out the long series of analyses from which it would then be possible to obtain satisfactory average results, consumes a rather considerable amount of time and means expenditure of a great deal of effort, particularly in the case of such complex constituted gases as coal gas, water gas and the like. In such cases it is customary to circumvent these difficulties by collecting an average sample of the gas, for example, one that covers a manufacturing period of 24 hours.

### Collecting the Samples

In collecting the samples of gas, bell-jar gasometers or aspirators are employed. The bell-jar gasometer, however, is used but seldom, for the reason that it is very inconvenient to move it about from place to place in the plant. In addition thereto, there is almost always a considerable space under the curvature of the bell-jar which is disadvantageous, and which makes the apparatus scarcely suitable for automatic taking of a uniform sample of gas.

Tubulated flasks, or when large quantities of gas are to be collected, cylindrical sheet metal vessels, provided with inlet and outlet pipes for the gas sample and for the water, are employed as aspirators. Water is used as the sealing liquid in the case of the ordinary combustion gases. Its action in washing out carbon dioxide and the heavy hydrocarbons is not so great that it introduces error appreciable in the analysis as long as sufficient care is taken in collecting the sample and in its further handling. Above all, the sample of gas should not be shaken with the water. However, when very accurate determinations of carbon dioxide are made, simultaneous control by means of a recording apparatus is necessary.

### Properties of a Satisfactory Average Sample

The average sample of gas manufactured during any unit period, in order to be a satisfactory representation of the entire manufacturing process, must bear a definite proportional relationship to the total gas production. In the case of manufacturing apparatus which are operated intermittently, as, for example, water gas and mixed water and producer gas generators, however, it is almost impossible to obtain a satisfactory sample of gas by means of the technical devices that have been available up to the present time. For within the individual gasification apparatus there are very considerable variations in the rate of production of the gas. The best that can be done in this case—and this only when the operating conditions permit it—is to take the samples of gas, not directly from the gas-making apparatus, but from an equalizing holder which has the effect of counteracting the variations in the rate of gaseous production.

### Sampling Continuous Gas Production

As far as the other gas manufacturing apparatus is concerned, these difficulties do not generally exist. For example, in investigation, a test of the apparatus will ordinarily be started after the installation has reached a stage of equilibrium connoting that both the rate of gas production and the quality of the gas are not varying to any considerable degree. This assumption holds good as well for the producer installations of the gas works as in this case as well steps are taken to make it possible to produce gas at as regular a rate as possible by suitable control of the charge and other operating conditions. This is absolutely necessary in using the gas production for other purposes on the plant. The taking of an average sample of gas can, therefore, in all cases be limited to approximately regular gas making, so that in a unit of time an equal number of cubic centimeters of gas can be removed and combined to form the total sample.

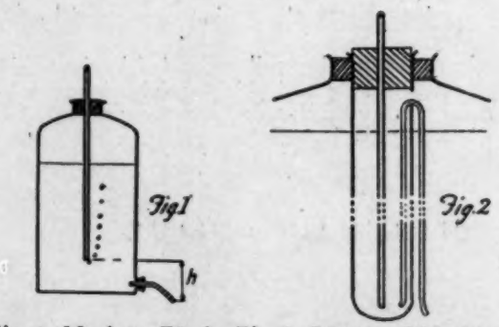



*Fig. 1, Mariotte Flask; Fig. 2, Improved Mariotte Flask*

### The Mariotte Flask

The Mariotte flask is the oldest and simplest construction of a gas collector. The gas inlet tube reaches down as far as possible into the flask. This

*Translated from Das Gas und Wasserfach.

has the effect of counteracting the pressure of the water column above the gas outlet, with the result that the effective water pressure is merely a difference of level between the opening of the gas inlet pipe and the gas outlet pipe as represented in figure 1. This makes it possible to obtain a constant outflow of gas from the apparatus.

However, this type of flask has many disadvantages. In the first place, at the start of the operation, the gas has to pass through a rather high column of water, with the result that any easily soluble constituents that it may contain are washed out. This difficulty can be overcome by means of the arrangement which is seen in figure 2. In this case it will be observed that the gas inlet tube does not enter directly into the aspirator, but into a tube which is closed at the bottom and which has only a small opening at the top. This opening makes connection with the gas space in the aspirator. Through this opening there is also inserted a syphon which has the effect of maintaining the same level of water inside as well as outside of the tube. The gas, consequently, has to pass through a small amount of water that is found in the inside of the tube and which soon becomes saturated with any soluble ingredients that are washed out of the gas.

### Another Disadvantage

However, this improvement does not counteract another disadvantage of the Mariotte flask. The

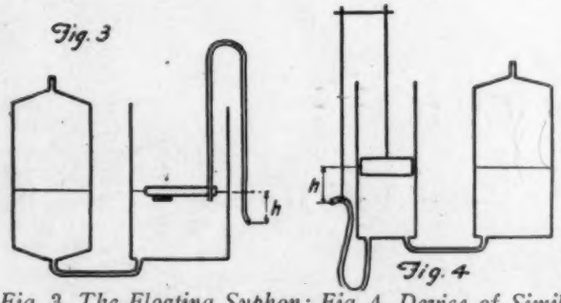



*Fig. 3, The Floating Syphon; Fig. 4, Device of Similar Principle*

gas content of the flask is always under pressure, which is quite considerable at the moment that the gas begins to leave the apparatus. Even if the stopper of the bottle leaks to only a very slight degree, or if there is a slight leakage through a welded seam, air enters the apparatus and spoils the sample. The pressure at the moment of taking the sample causes still another error. The rate of water outflow is constant, but this does not hold good for the gas entering the flask. In the case of an aspirator, one meter in height, there will accordingly be found a difference of approximately 10 per cent between the first and the last liter of gas collected.

### The Floating Syphon

The aspirator is connected with an open cylindrical vessel. Both are of equal depth. In this vessel a syphon is arranged so as to be removable, this being accomplished by means of a float which is made out of tin or wood. In this way the syphon can follow along with any change that takes place in the water level. This may be seen in figure 3. In this manner the same difference in water level always acts on the flow out of the syphon and as a result the flow of gas must be entirely continuous. The auxiliary flask which communicates with the cylindrical aspirator has a water level which corresponds with that in the aspirator.

### Another Device

An arrangement which works in accordance with a similar principle is seen in figure 4. In this arrangement a float is caused to move up and down within a cylinder and to this float there is connected a vertical rod. A horizontal rod connects the vertical rod with another vertical rod, the lower end of which is connected to a piece of tubing. This tubing is connected to the outlet opening of the aforementioned cylinder. Hence the upward and downward movement of the float causes the raising and lowering of the open end of the rubber tubing and in this way affects the flow water from the apparatus.

Still another modification, which was used originally for other apparatus, is seen in figure 5. In this case the movable end of the outlet tube is connected by means of a pulley arrangement with a float that is suspended in an auxiliary vessel. This vessel then fills with water at the same rate at which the aspirator empties. This device is particularly well suited for taking small samples of gas in the laboratory and especially when these samples are taken at atmospheric pressure. The apparatus can also be adjusted so that there is a constant overflow level and, accordingly, it can be used for obtaining average samples of gas in the operation of the gas works. However, inasmuch as it is very sensitive to changes in gas pressure, a pressure regulator must be inserted in the gas pipe leading to this apparatus when the samples are taken with its aid.

### A Conical Auxiliary Vessel

Figure 6 shows a cylindrical aspirator which is connected with a conical vessel open at the top. By selecting the proper dimensions of the apparatus it is possible to attain the condition that, when the size of the outlet is unchanged, the fall in the height of the water in a unit of time remains constant. The speed of outflow of water, and of course the quantity of water that pours out of the apparatus will then be proportional to the height of the water. If care is taken to see that the cross-sectional areas of vessels are always proportional to the square root of the height of water, then the level of the water will sink a constant amount in a unit period of time and the quantity of water that flows out of the aspirator and the amount of gas that flows into it will also be constant.

### Outflow Regulator with Float

The disadvantages of the devices which have been described up to this point and the difficulties that are encountered in their manipulation made it appear worth while to construct a simple, small outflow regulator whose design corresponds in principle to the well-known gas pressure regulators.

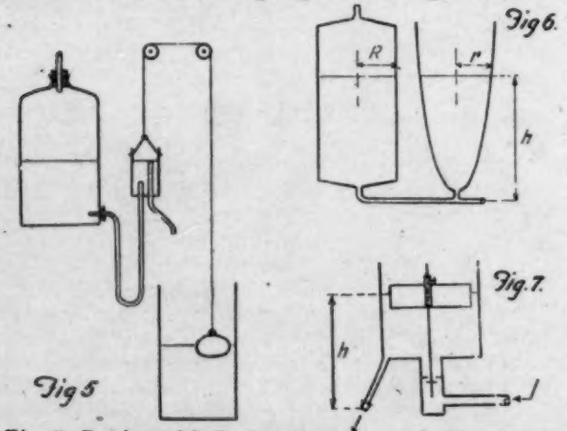



*Fig. 5, Device with Pulley Arrangement; Fig. 6, Device with Conical Auxiliary Vessel; Fig. 7, Float Regulator*

As may be seen from figure 7, the outflow regulator consists of a cylindrical vessel of approximately 8 centimeters in diameter and 9 centimeters in height and it is provided with a water inlet and an outlet opening at its lower part. In the water inlet which is connected with the aspirator a valve is arranged which is actuated by a float. When the water level in the outflow regulator rises then this valve closes, and when the water level falls the valve opens and allows more water to enter the apparatus. The water level in the regulator is consequently maintained at a definite height and in this way it completely controls the outflow of water and insures a uniform rate of flow.

The speed at which the water flows out of the regulator is not controlled by means of a cock, but by means of replaceable nozzles which can be more readily manipulated. The intermediate stages can be secured by shortening or lengthening the valve stem and therewith easily adjusting the water height. The ordinary speed of outflow lies between 30 and 60 cubic centimeters per minute and corresponds to 50 to 100 liters of aspirator volume per 24 hours. The valve opening is kept as small as possible so that the flow is able easily to open the valve by force of its own weight, even at high water pressure.

# Home Service*

## A discussion of its functions and its results

*Marion Brainard*

Luzerne County Gas & Electric Corporation, Kingston, Pa.

LET me recall parts of a well-known story to you, a story which shows a little of what has been accomplished because, in the hearts and minds of many, there has been the idea of Service—real service, which always results in making our daily lives more livable.

In what we call the Middle Ages, the baron, for all his jewels, wore coarse, hand-made clothes, dyed roughly and in few colors. His palace knew no light except torches and candles, even glass windows were unknown in those days and no heat except that of open log fires. The dark, cold castle walls were hung with flapping arras, behind which the assassin often lurked. If the baron traveled, he went on horseback and in armor, which did not always save him from being murdered if, like Banquo, he rode unattended at night through the unlighted streets. His only entertainment was furnished by wandering jongleurs, the songs of the occasional minstrel or the reiterated jests of a court fool.

His food was extremely monotonous and all the long winter it consisted mainly of salted fish and salted meat with no vegetables or fruit. Hence, contemporary poets hailed "the sweet spring" with no little enthusiasm. Sugar was a rare oriental luxury; tea and coffee were unknown. Even the commonest spices were distinct luxuries and were laboriously brought into Europe by caravan from Asia and sold at extraordinary prices. The food which the baron did have was prepared laboriously over fires which blackened the pans and smoked the rooms. And the food was frequently unpalatable because of the

*Delivered at the Scranton meeting of the Pennsylvania Gas Association.

very nature of the cooking. Think what the task must have been for the servants!

### The Queen Bess Time

This same baron bathed rarely and without soap, in cold water, because heating it was too difficult a process. Even as late as the days of "good Queen Bess" it was deemed advisable, when presenting a masque to the noble ladies and gentlemen at court, to have a perfumer walk up and down through the audience, lest the odor of the unwashed flower of England's lords and ladies overcome the pleasant fancies of the dramatist.

Such an existence, colorful as it may be rendered by Sir Walter Scott, scarcely appeals in a practical way to the American of 1925. And yet the baron was undoubtedly the dominant social, political and economic figure of his age. What the daily life of the common man in the Middle Ages was can best be left to the imagination.

### A Contrast with the Common Man of Today

And now for a present-day haberdasher's clerk. He dresses in a variety of plain but substantial clothing and for breakfast, if he is especially hungry, has the choice of imported fruits (be it January or June), coffee from Java or Brazil, eggs, fresh milk, white bread and cereals, with pepper from the East Indies and sugar from Cuba included, as a matter of course. Anything he may desire, in fact, is prepared quickly and easily. He rides to work in a trolley, subway or a steam railroad car, a distance of several miles. And when the day's work is done he dines on a variety of foods which would have been incomprehensible to our baron—foods prepared in a clean, smokeless kitchen with none of the attendant distress of building fires or scrubbing blackened pans. His wife may remain calm and good-natured. He then reads his paper or magazine in a cheerfully lighted room, while he puffs contemplatively on a cigar assembled from Sumatra, Virginia and Maryland, and, summoning his friends by telephone, enjoys the most classic, or more frequently the least classic music on his radio, or sallies forth through streets almost as bright as day to attend the motion pictures. He lives a longer, more pleasant and more intelligent life, despite his modest income and subordinate economic position, than the average medieval baron could picture in his wildest dreams.

And a not inconsiderate part of this great change in living conditions is due to the work and service of gas and electric companies. Such companies long ago began to realize that without Service as a purpose they could not long succeed. Now they are realizing that Real Service must include, not only the production and selling of these commodities, but also instruction and help in the intelligent and economic use of these commodities. For this purpose we have organized Home Service departments.

### All Employees Giving Service

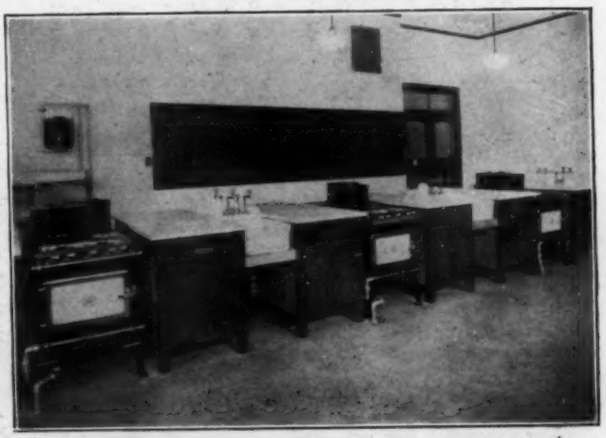
Of course, in such organizations as ours, everyone is either directly or indirectly serving the home and is in reality a part of a big Home Service department. But the departments which we designate as Home Service are in a very definite way creating a feeling of greater friendship between the consumer and the gas company, because they are giving this very instruction and help in the use of gas. They are helping to bring about relations with consumers which are friendly and profitable—profitable both to the consumer and to the organization, for nothing is profitable which is not profitable to both. That is simply an economic truism.

One day a most excited and irritated telephone message came to one of our offices from a woman who had just had a prepayment meter installed in her home, telling us to send up another can of gas right away, as the first one was entirely used up, also stating that she was sure the first one was not full, anyhow, for she knew that she had not used that much gas. While it may be unusual for many housekeepers to be so ignorant of the use of gas as this particular woman, yet there is many and many a one who does not know the things about its use which seem so very simple to us who are working with it all the time. The things which help to make the use of gas as a fuel a comfort and a pleasure and to lighten some of the burdens of housekeeping.

### Disseminating Useful Information

How many women, for example, do you think know how a gas flame should be adjusted to give the greatest amount of heat? Very few. Instead, when the adjustment is not right, they blame the gas—it smokes and is no good at all because it blackens the pans, or the gas company is trying to cheat them by selling them a poor quality of gas. How many women know how to use gas economically—to adjust the flame to keep the water at boiling temperature, but not to waste it by simply letting the water boil away? Or to make use of the simmering burner and the smaller burners? (How they do love

(Continued on page 248)



*Domestic Science Equipment at Teachers' College, Columbia University, N. Y. City*

# GAS MERCHANDISING

*Domestic – Industrial*

# Ideas for the Man Who Sells

*William H. Matlack*

## A NEW YEAR SALE

THE Laclede Gas Light Company of St. Louis opened the new year with a $2 Down Sale. The sale featured only the down payment, with no price on appliances given, "$2 down and 18 months to pay" being the big feature throughout the advertisement, which, by the way, was very nicely gotten up with special head and tail piece border and a hand-drawn opening pictorial streamer and signature logotype. The coupon used is a new departure in connection with the use of coupons. In fact, the idea and the advertisements are products of 1926.

THE LACLEDE GAS LIGHT COMPANY
$2 down Sale
A New Range for the New Year
Lorain Oven Heat Regulator
Gas Fireplace Heater
Steam Heat Without a Boiler
"Home Service" Refrigerator
Gas Laundry Dryer
This will Save You Thousands of Steps in 1926
Hot Water Always Ready
Safety Gas Garage Heater
KITCHEN NEEDS
The LACLEDE Gas Light Company
Olive at Eleventh
CEntral 3800

## ABOUT ADVERTISING

IN looking toward that goal that the industry is to kick and which will make the gas sales score 50 per cent higher than it has ever scored before, we should keep our eye on advertising and make it as good as we can. The increase is possible if sales efforts are properly directed. Advertising is "printed salesmanship" and it should approach the prospective customer in the same manner that the high class salesman approaches him. It should be well dressed and "know the book." It should arouse his interest and it should be planned to stimulate his imagination. It should cause the home manager to anticipate the untold pleasures and satisfaction to be derived from gas service and by the use of modern, scientifically designed gas appliances.

If advertising is to do this, and it must, if it is to be productive, it must be given the same care and thought that increased manufacturing equipment is given; it must be planned by a man who understands typography, layout and merchandise, and who can write.

### The Ideal Advertising Writer

The George L. Dyer Company, New York advertising company, recently had the following to say about advertising in an advertisement: "The great advertising has not been by the literary man who has condescended to go into advertising work. And the advertising classics which have been written by men who are a special breed, men almost always of dual mind and dual personality. On one side of the brain the merchant loving his merchandise. On the other side, the writer eager to express the merchant. When in one person you find the merchant-mind and th writer-mind working as one—then you are face to face with the true advertising man in his highest and fittest sense."

If that type of man can be retained, no difference what his fee, he is the man to write your advertising.

"One of the big reasons for the success of John Wanamaker's advertising is that people believe it." —The Paper Book.

# As The Journal Views It

## GAS SERVICE AND COST OF ADVERTISING

Those, who have been observant, have often wondered as to how the gas companies are able to absorb the costs involved in the extensive advertising campaigns that they conduct. While in the past the gas companies were not thoroughly sold on the value of advertising, today it is safe to say that the volume of advertising that is done by the gas utility and by the other public utilities as well, forms a very large part of the total advertising income of the newspapers of the country. The gas companies are using more and more space in the news journals and this added expense must naturally be absorbed in some equitable manner.

If the entire advertising subject is examined with care, it will be seen that the main benefitor of gas company advertising is not the gas enterprise itself, but the community that it serves. The gas company advertises to increase the sales of gas as well as sales of gas appliances. The more gas the gas company sells, the lower will be the gas cost, for various overhead charges, interest on equipment and the like will then be distributed over a greater production of gas. This will make the cost per thousand cubic feet that much less. Inasmuch as its rates are fixed by public service commissions, so that it is allowed to make only what is considered a fair return on investments, it is a fact that rates are reduced as costs decrease.

Thus, the consumer is directly benefited by the advertising that is done by the gas company, in having to pay less for his gas. The question now arises, is it not therefore proper that the consumers, being thus benefited, should stand the expense of advertising? In other words, should not advertising be made a legitimate charge against the cost of gas service?

Mr. Clifford E. Paige, vice-president of the Brooklyn Union Gas Company, in referring to this matter, said: "Advertising increases the business of the gas company, and thus helps to keep rates from soaring with other commodities.

"It is not enough that an advertising appropriation be a perceptible item in the expenses of the operation, it should be a conspicuous item in the cost of gas.

"We can better justify a rate based on a successful and substantial advertising effort than to apply for a higher rate because we have lost business through lack of advertising."

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## THREE "CENTURY-PLUS" BIRTHDAYS

The manufactured gas companies of the United States will celebrate three birthdays in 1926, which will mark the 130th, the 120th and the 110th anniversaries of notable developments in the industry.

One hundred and thirty years ago, in 1796, the first manufactured gas illumination ever seen in the United States was displayed in Philadelphia. M. Ambroise, an Italian fireworks artist, called in a number of his friends to show them the superior qualities of gas lighting. He distilled coal in a crude iron retort and carried the gas into his rooms through home-made pipes. The gas burned as it came from the pipe, without any burner, and, according to reports of that time, "was seen with vast admiration."

In 1806, 120 years ago, David Melville, of Newport, R. I., set up a home-made gas plant and lighted his house with the mysterious fuel. For his temerity, it is said, he was severely criticised by his neighbors, many of them retired whaling captains, who believed that the whale-oil lamp was the ultimate in illumination.

A hundred and ten years ago, in 1916, the first manufactured gas utility company was established in Baltimore, Md., to be followed in 1823 by the first New York City company, the direct ancestor of the utilities which now serve the metropolis.

In 1876 the first gas stove appeared, and from 1882, when the electric lamp became a rival of the gas light, gas cooking began to develop rapidly.

At the present time only about 15 per cent of the gas produced is used for lighting. Sixty per cent is used for cooking and domestic heating and 25 per cent for industrial heating processes.

In 1925 the manufactured gas companies of the country sold more than four hundred billion cubic feet of gas, more than double the total for 1915. Of the 1925 output New York State consumed one hundred billion cubic feet.

There are now in New York State 15,000 miles of gas mains, serving towns and cities in which live nine-tenths of the population. It is estimated that more than two-thirds of all the food prepared in the state is cooked on gas stoves.

## HOME SERVICE

(Continued from page 245)

that giant burner!) Very few know these things. And so we have complaints of bills which are unnecessarily high. How many users of gas consider it as they would any other commodity in the home and study to use it wisely and to their own best advantage? Unfortunately, very few.

But these are just the A B C's of the work, you will say. Of course, they are to you. Everything in the world is simple enough after you know it. But these women to whom we are selling gas have in most cases never been told any of these things, so how would you expect them to know? Think for themselves? Well, the ones, either men or women, who do that in this world are very few and far between.

No! If we want satisfied customers, these very A B C's are some of the things which we must begin to tell them.

### Varied Service Rendered

The work which is possible along these lines of instruction and definite help in the use of gas is almost endless in its scope. You have all, no doubt, heard of the many and varied things which Home Service departments are doing throughout the country. All of these things go right back to the same two fundamental purposes—Service and Education. Service, which helps the immediate needs, and Education, to help the future needs and to bring about the more intelligent use of gas which we desire.

We are all of necessity imitators. There are few, if any, original ideas developed in this world. We pick up a little here and a little there and out of these littles we gradually develop something which seems to us practical. The next thing we have to do is to try out this something and see if it is truly practical and accomplishes what we desire. We who are doing Home Service work desire the good will and friendly co-operation of our customers. We desire to have the consumers think of gas as of any other commodity in the home and learn to use it intelligently and wisely. We desire to have them know that we are working with them to accomplish that result. That we are supplying them with a very useful commodity and that we are also giving them help to get the best results from the use of that commodity. And by passing on to each other the things which we have tried and which we have found practical, Home Service departments are realizing these desires very rapidly all over the country.

### "Back to the Kitchen" Idea

There is the "back to the kitchen" idea, which finds an outlet in cooking demonstrations. Many are devoting the entire time to this. Some find that the best results are obtained in following up new ranges, that is, going to the home where the range has been installed and explaining fully the care and use of a gas range to the housewife. This is giving instruction at the proper time—the time of installation. And if the territory is extensive and the number of workers limited, there is little time for other phases of the work. Others do much work with groups of women, giving them talks and demonstrations in their organizations—women's clubs, parent-teacher associations, civic leagues and church organizations. Those who do this work must be able to talk in terms which are understood by the particular group with which they are working.

I have often wondered just how the use of gas and electric appliances could tie up with a foreign missionary program, but when I have outlined to such an organization what the Home Service department can do for them they have been very eager to have the talks and demonstrations given to their groups. Sometimes when I have been talking on Home Lighting, as I frequently do, since my work includes electricity in the home, I have felt that we should make the program complete by singing "Let a Little Sunshine In," or "Brighten the Corner Where You Are." But I have yet to discover the hymns which will tie up with a demonstration of a gas range.

### Newspaper Advertising and the Personal Appeal

While newspaper advertising has its advantages, it does not make the appeal to the consumer that personal contact does. In fact, we know that many housewives are too busy to read the advertisements in the daily papers or circular letters. Since a house-to-house campaign would be impractical, these women's clubs, civic and church organizations and schools are the logical means left of reaching the people.

Only a limited number of women are brought in contact with the results of educational work through the organizations and so much time may very profitably be spent teaching the fundamental principles to the school child. By teaching the child not only is the future generation being educated, but correct information on the subject of utilization is being put into practically every home in the community. If you know children, you know that it is a very unusual child who does not talk at home about what he hears at school, particularly if it is something different from the regular routine.

### The Meter in the Class Room

There is the work with the physics and general science classes on the construction and operation of meters. This may be done with a special meter designed with glass top, front and back. There is the work with the chemistry classes on the manufacture of gas; with the home economics classes teaching the importance of gas as a fuel and how to use it. There is the teaching of meter reading to all these groups. How many complaints of high bills would be nipped in the bud if the householder could read his own meter!

Because of the results which we have had in our Home Service department, we can assure you that

you will find the schools most receptive of this work. We first obtained the approval of the superintendents, through them of the principals. The teachers of the various classes with whom we then talked were eager for our help, because it tied in so directly with the various courses of study. Because of the way in which we presented the subject, only one superintendent questioned that we would commercialize our work. Even he was soon convinced that our purpose was one of help and service only.

### Educational Work Effective

From our experience we also know that this educational work with the schools brings immediate results. Mary, having learned in school how a gas flame should look to give the greatest amount of heat, goes home and tells mother that she had better have the burners of her stove adjusted. Then the request comes to us for help. And there is always sure to be the interest created in the parent by the fact that the utility organization is really trying to help both in the schools and in the homes.

You would be interested to go to these homes with us sometime. The lack of care of appliances which we find and the careless wasting of fuel is often quite deplorable. We are frequently reminded of Mary's reply to her new mistress' question as to how she liked the gas range after two weeks' use—two weeks during which the mistress had unfortunately been away from home. "Sure, mum," replied Mary, "it's the finest range iver I see. It hasn't gone out yit."

So whenever you find a Home Service department you will find the workers conscientiously trying to follow the lines which they think will bring about the best results in their community. As the departments are enlarged, the field can be broadened and more and more phases added to the work. It is in some places possible to have sufficient workers even at the beginning to develop along all lines. This is, of course, the ideal way.

In the introduction to their most recent report, the Home Service Committee of the American Gas Association said, "It is seldom that ideals and commercialism are seen as harmonious team-mates in the performance of any job. Home Service in a gas company, rightly administered, effects this happy fusion." This you will find true, whether your department can be large or must of necessity be small.

### Public Relations

We hear much talk about public relations. Philip L. Thompson, of the Western Electric Company, once delivered a radio talk called "You and Your Public Utilities." In these words, it seems to me, he summed up the idea of the public relations of a utility corporation. If the people of the community can be brought to think of the organization as "theirs" the very best results will be accomplished. That is why we try to induce them to buy stock; that their feeling of ownership may be an actual one. That is why we have Home Service departments. That is why we try to do everything in our power to make them feel that we are one with them and are working for them. In other words, make them think—"Our Public Utilities."

There is still a very widespread opinion that utility organizations are trying, in the vernacular, to "do" the public. This false impression is due largely to the lack of general understanding of the tremendous amount of labor and capital which is back of the possible use in the home of such seemingly simple necessities as gas and electricity. What we must do by gradual education is to bring about a definite realization of this expenditure so that the people may have a more intelligent conception of what their public utilities really are. We must also bring them to a realization that it is our desire to help them to a better and easier mode of living, by teaching them how to use gas, and how to get the best results from that use, just as they would learn about the use of any other commodity in the home.

### Consumer's Viewpoint Changed

For example, the consumer, after receiving valuable instructions given in detail as the gas leaves the holder until it supplies his range, cannot but look at gas from a different and more appreciative angle. When brought to a realization that she must give thought to the use of gas, as she would to meat or flour, in order to obtain the most economic and efficient results, the housewife begins to feel that the gas companies are not really trying to "cheat" her, but instead to truly help her to a solution of her problems. And the Home Service departments are doing much to bring about this desired metaphysical result—the elimination of prejudice.

All of this is, of course, the idea of creating "good will," which, though very old and talked about until it seems trite, is none the less of the greatest importance.

Try as many of these plans as you can or as you desire. So long as we all keep in mind the fundamental idea for which we are working—harmony in the relationship between the public and the utility organizations—the name which is applied to us—Public Utility—cannot fail to be more truly justified.

*A Cooking Class in a Modern High School*

INDUSTRIAL GAS LESSONS

IF IT'S DONE WITH HEAT — YOU CAN DO IT BETTER WITH GAS

# Lesson No. 112

## Combustion

### Sulphur

It has been said previously in these Lessons that sulphur is a combustible element. It combines with oxygen to form sulphur dioxide, which is a gas of very characteristic odor, generally called the odor of burning sulphur. This reaction produces heat, but it is far-fetched to say that sulphur is a source of heat for practical purposes. There is sulphur in coal and when coal burns the sulphur in it will burn also and will contribute a part of the heat that is generated in toto by the combustion. The presence of sulphur in coal is a detriment, even though it has some heat value.

From the gas man's standpoint the importance of sulphur in coal lies in the fact that this is the source of sulphur in the gas. It is, of course, necessary that this sulphur in the gas, which is found partially in the form of sulphuretted hydrogen, should be removed by purification.

Therefore, the analysis of coal for sulphur content is important to the gas man. It will not be attempted to describe the analytical methods employed but it might be mentioned that the sulphur occurs in three forms in the coal: (1) pyritic sulphur, (2) organic sulphur, and (3) sulphate sulphur.

### Pyritic Sulphur

The first type of sulphur, pyritic sulphur, occurs in coal as iron pyrites. This mineral is imbedded in the coal seams and is well disseminated through the coal mass. One way in which it is possible to reduce the amount of sulphur in coal is by washing the fuel very thoroughly to remove pyritic materials.

The second type of sulphur, organic sulphur, refers to the sulphur that is combined with hydrogen, nitrogen and carbon and exists in the coal intimately mixed with the other substances that form this complex material. Organic sulphur is derived from the sulphur contained originally in the vegetable matters from which the coals were derived.

The third type of sulphur, sulphate sulphur, is commonly present in coal in the form of gypsum. The original of gypsum is to be found in the weathering of the coal during the oxidation of the sulphides contained in it, takes place.

### Nitrogen

Nitrogen is another element which is contained in coal. While it has absolutely no heat value, nevertheless, it is a very important ingredient of coal. For from it are derived ammonia and cyanides that are washed out of the gas in the purification process. The nitrogen contained in coal is intimately mixed with the coal substance. It is derived from the original vegetable materials whose decompositions resulted in the formation of the coal.

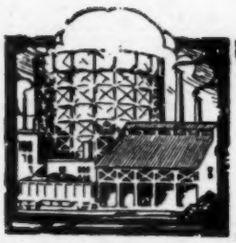
### Rational Analysis of Coal

This is another form of analysis which is becoming of increasingly great importance in addition to the ultimate and proximate analysis of coal. It relates to the determination of the manner in which the various elements are combined in the coal and also as to how these specific combinations affect the properties of the coal.

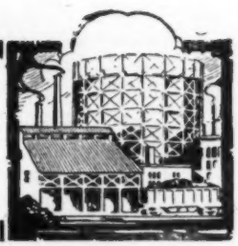
Thus, for example, as far as formation of coal is concerned, it may be held that coal will give degradation products of three types. In the first place there is a cellulosic material. This is derived from the woody part of the plant or tree. Then there is the resinic material which refers to the gums, waxes, resins, etc. These may have been derived from the sap of the original vegetable matter. Finally, there is the nitrogenous material which consists of compounds of carbon, hydrogen, oxygen and sulphur.

COMPOSITION OF COAL
Sulphur, although contributing to heat generated in combustion, is an impurity
Sulphur in coal—comes from pyrites imbedded in coal seams.
Sulphur is combined with coal substance.
Sulphur also comes from sulphates produced in weathering of coal.
AMMONIA
Nitrogen in coal is source of Ammonia scrubbed from gas.

There are four main methods for the determination of the formation of degredation products of these materials that are present in coal. These consist first of the action of chemicals, second in the selective solution, third in the effect of heat and fourth, microscopical analysis.



# NEWS OF THE GAS INDUSTRY



## New England Industrial Men Meet in Boston

**Constitutes First Meeting of Industrial Division of N. E. Gas Association**

At the opening of this meeting President E. L. Woods announced that with the forming of the New England Gas Association at the February meeting of the New England Association of Gas Engineers, held at the Hotel Somerset in February, the Industrial Gas Association of New England became the Industrial Gas Association Division of the New England Gas Association. As the association had already authorized the constitution has been changed to read in this manner wherever the words Industrial Gas Association of New England appear.

J. H. Sumner called the attention of those present to the fine list of books treating on gas which the American Gas Association has collected in its library and referred members to the February A. G. A. Monthly for a list of these books. He also stated that a compilation of the data sheets sent in last year has been made and put into book form and that these are ready for distribution. He also pointed out that there was a demand for speakers before civic and other organizations and that the association has prepared talks which are available to the members for delivering before such organizations.

### Low Temperature Controls

The speaker at this meeting was Mr. George D. Kingsland of the Minneapolis Heat Regulator Co., who talked on the subject of "Low Temperature Controls."

Mr. Kingsland said that by low temperature control he meant a range between below zero and up to 490 degrees Fahrenheit. These temperatures can be handled with a bi-metallic thermostat. Temperatures above 490 cause a fatigue of the metal which makes the results less satisfactory.

The principle of the bi-metallic control is based upon a coil composed of two metals having different coefficients of expansion and laminated together. The metals used by the Minneapolis Heat Regulator Co. are steel and brass. The difference in the expansion of these two metals causes a twisting motion in the coil when heat is applied and this motion is utilized to make and break electrical contacts as the heat rises or falls.

### First Patent in 1879

It was in the middle seventies that the idea was conceived of applying automatic temperature control of home heating plants. The first patent was issued for a thermostat for this purpose in 1879.

Mr. Kingsland showed one of the very first thermostats made. Instead of steel and brass being used there was a strip of rubber to which a strip of steel was riveted. A rise in temperature caused the hard rubber strip to bend. This particular instrument had been in use for thirty-three years, giving good service all that time. For the past seven months it has been used in an office of the company and has not allowed a variance of more than two degrees in temperature. Though rather crude in construction it has proved effective.

As a matter of fact the principle upon which the first thermostats were made was so efficient that in forty-six years the basic idea has remained the same. It has been simply a matter of improving the construction and thermostatic heat control is now being used in several million homes to control coal, coke, gas and oil fires.

During the first ten years of the house heating temperature control business several hundred thousand dollars were put in without much in the way of return. Heating plants were not equipped with dampers suitable for automatic control.

### Interest Slight at Start

At first the heating trade was not interested in temperature control and sales were made through the mails to the users. In spite of the fact that this was a new device and that satisfaction had to be guaranteed, very few of the outfits shipped on approval were sent back by the purchasers.

In the nineties the heating field became interested. Other manufacturers entered the field and the business began to expand with a great deal of rapidity.

In 1906 and 1907 the first clock was attached to the thermostat. It was designed on the alarm clock principle and was a one-day clock. Mr. Kingsland showed one of these early thermostats with the clock attached.

The idea of being able to dress in a warm room and the realization that with the clock attached it was possible to bring up the temperature automatically before getting out of bed made a great appeal to the public and sales began to soar to a marked degree. By 1912 the first eight-day clock was used with the thermostat. This still further stimulated sales and distribution expanded greatly.

### House Heating Field Entered

Along in 1910 to 1912 gas entered the house heating field. The gas man realized the need of automatic control. Gas being a higher priced fuel than that which it replaced and also being much more suited to automatic control, such control was necessary to make house heating with gas really practical.

Mr. Kingsland said that he thought that more intelligent application of gas to house heating had been the case in New England than in any other part of the country.

A step from the room temperature control to the control of the

temperatures in the heating plant itself has been a long step toward greater efficiency and safety. Mr. Kingsland showed a thermostat adapted to the control of the hot air in a warm air furnace, of the water in a hot water boiler and the steam in a steam boiler. It is placed in the dome of a boiler or in the principal warm air duct of the furnace. This protects the heating plant and adds much to the life and usefulness of the warm air furnace, for it is excessive heat more than anything else that makes the life of the average hot air furnace so short.

About 1919 the automatically controlled oil burner came on the market. Oil heating was no new thing then. It had been used for a generation or more. It was when the thermostat was applied to the oil burner, however, that oil burning became really popular. There are now no less than 2,800 concerns manufacturing oil burners.

**Electric System of Control**

For the past three years the new three wire closed system of electric circuit has been in use. In this system two contacts have to be made to energize the solenoid. First one contact is made and then the other. The contacts are broken either by a cessation of the supply current or an increase in temperature. It is the same system that is used in signal systems where everything must be designed with reliability and safety in mind. Safety has been increased and a better make and break method provided.

The bi-metallic thermostatic control of heat can be applied and is being applied to many other problems besides house heating. Dry rooms, bake ovens, ventilating systems and the like are just a few. The automatic control protects property and health by replacing human operation.

**Application to Greenhouses**

A baking or drying temperature can be controlled within a variance of two degrees, provided it is not over 490 degrees. A greenhouse with automatic heat control enables the owner to come more nearly bringing his flowers to maturity at the exact time when the prices are the highest. Heating greenhouses with gas may not at first sight seem practical, but when you stop to consider that flowers that mature a few weeks before Easter do not bring a price anywhere nearly as high as those which are ready for the market right at Easter and that a loss may have to be taken on flowers that are not ready until after Easter, it can be seen that the price of the fuel is not the whole consideration. With the perfect heat control gas gives the temperature may safely be held down or increased to the point necessary to bring the flowers along at just the time to secure the highest possible price.

Automatic heat control was recently applied to some ovens used in Saint Louis for surgical sutures. A variation of four degrees will result in a serious loss. In sixty days of operation of these automatically controlled ovens there was not a single failure. The heat control has much more than paid for itself.

Thermostats have been used in bearings of large machines. If the lubrication fails and the bearings begin to heat, the machine is shut down before any damage results. They have been used extensively on district steam systems.

The modern thermostat requires less than 22 seconds for a complete cycle. Mr. Kingsland stated that from 160 to 180 degrees was as high as the temperature should run on the hot air from a hot air furnace. A higher temperature means less satisfactory heating. Houses have been heated in zero weather with air that has been raised to only 140 degrees.

**Tests on an Apartment House**

Mr. Kingsland then told of tests made on a new apartment house in Melrose, Mass. This is a 12-apartment building, three stories high with four apartments on each floor. It is heated with coal and has a Hoffman vapor system with a separate supply line running to each apartment.

From Jan. 16 to 31, no thermostatic control was used. The coal consumption was 10,500 pounds. From Feb. 1 to 15, a thermostat in each apartment was put in control of the temperature of that apartment. The supply of steam to the apartment was regulated by this thermostat through the medium of a valve in the supply line to the apartment. All twelve of the valves are located in the basement. The coal consumption was only 7,000 pounds. This was the case in spite of the fact that during the February period the average outdoor temperature was 26.3 degrees, while during January it was 31.5 degrees. The maximum daily consumption of coal in January was 840 pounds; in February 615 pounds. The minimum day in January was 615 pounds and in February 290 pounds. The average was: January, 700 pounds: February, 430 pounds. The temperatures without automatic control varied from 70 to 82 degrees. With automatic control they stood at 70 degrees in all parts of the building.

* * *

**C. E. Paige Addresses Men's Club**

Brooklyn, N. Y.—About two hundred members of the Men's Club of Emanuel Lutheran Church recently enjoyed a talk on the development of the gas industry by Clifford E. Paige, vice-president of the Brooklyn Union Gas Company, at the monthly meeting of the organization.

Mr. Paige took his hearers back to 1816 when gas was first used in Baltimore for lighting. The industry, he said, has grown into the greatest public utility in the United States with its $4,000,000,000 of invested capital as against fifteen billion invested in all kinds of transportation utilities.

Brooklyn alone, he said, has a gas storage capacity of 64,000,000 cubic feet in its tanks and one of the greatest tests of their efficiency happened during the recent coal shortage.

A sudden drop in temperature, on January 29, he related, brought a 92 per cent increase in demand for gas, calling for 122,000,000 cubic feet, which required the distilling of 2,000 tons of coal and 400,000 gallons of oil to supply the amount of gas that day.

**Southern Gas Association Elects New Officers**

The Southern Gas Association elected the following officers at the Annual Meeting held at New Orleans, La., March 15th, 16th and 17th.

President, A. E. Merchant, New Orleans, La.

1st Vice-President, P. S. Arkwright, Atlanta, Ga.

2nd Vice-President, Roy E. Ziegler, Jacksonville, Fla.

Secretary-Treasurer, J. P. Connelly, Charleston, S. C.

The 1927 meeting of the Association will be held in Atlanta, Ga.

# "On to Des Moines"

### Iowa Gas Men to Meet in April

This will be the slogan of the gas men in Iowa, Nebraska, North and South Dakota and Minnesota in April when the 21st annual meeting of the Iowa District Gas Association will be held in the capital of the state "where the tall corn grows."

Headquarters will be at the Hotel Fort Des Moines and reservations already point to a record attendance. Those who make the trip will be well repaid for a most attractive program is being prepared. Subjects of interest to everyone associated with the gas industry will be discussed by experts from various parts of the country.

A meeting of the officers, council and past presidents will be held on Wedesday morning, April 21. The convention proper will get under way at 2 P. M. and the session will be devoted to business. There will be reports by officers; each affiliation representative will tell of the activities of his section of the American Gas Association; Joe Carmichael will report on the Iowa Committee on Public Utility Information; Charles W. Person, secretary of the Advertising Section, will speak as the official representative of the American Gas Association; and the retiring president, C. M. Benedict, will follow with his address. New officers will be elected and the question of changing the association's name will be considered. Anyone who is absent on Wednesday afternoon will miss a most important and interesting session.

On Thursday and Friday, sessions will be held morning and afternoon. There will be many interesting papers, among which are:

"Water Heating": R. H. Lewis, Ruud Mfg. Co., Pittsburgh, Pa.

"Advertising as a Selling Agent": W. E. Derwent, Roper Corporation, Rockford, Ill.

"Home Service": Mrs. Anna J. Peterson, Peoples Gas Light & Coke Co., Chicago, Ill.

"Generator Fuel": Symposium led by Louis Stein, Gas Engineer, Northern States Power Co., Minneapolis, Minn.

"House-Heating": Glenn C. Carnahan, Manager Water Heating and House Heating Div., Peoples Gas Light & Coke Co., Chicago, Ill.

"Commercial and Industrial Load": J. F. Trexler, Industrial Department, Lincoln Gas & Elec. Co., Lincoln, Neb.

"Gas Refrigeration": C. A. Nash, General Sales Manager, United Light & Power Eng'g Construction Co., Davenport, Iowa.

"Customer Ownership": Author to be announced.

The annual banquet—always a most enjoyable function—will be held in the ballroom of the Fort Des Moines Hotel. The banquet program is being kept a dark secret, but this much can be disclosed—the speaker of the occasion will be Mr. Philip H. Gadsden, vice-president of the United Gas Improvement Company at Philadelphia. Mr. Gadsden, a national figure and entertaining speaker, will doubtless bring to the gas men of this district some new conceptions of service, goodwill and all those things which help develop better public relations.

# Natural Gas Men Meet in Tulsa

### Marks Eighth Annual Meeting of Oklahoma Utilities Ass'n

Executives and employees of gas companies found more of profit and interest to them in the sessions of the eighth annual convention of the Oklahoma Utilities Association at Tulsa, March 9, 10 and 11, than in any previous convention of the association. In addition to addresses on subjects pertaining to gas utilities on the general program, the entire afternoon of March 10 was devoted to a special meeting of the Gas Division in which troublesome problems were discussed and experiences exchanged.

The convention itself was presided over by one of the leading natural gas executives of the country, R. C. Sharp of Tulsa, president of the Oklahoma Utilities Association and vice-president Oklahoma Natural Gas Company. The convention was also addressed by A. W. Leonard of Tulsa, a vice-president of the same company and president of the Natural Gas Association of America, which is to hold its next annual convention in Tulsa in May.

#### Appeal to Women Customers

On the opening day, the convention listened to an address on "An Appeal to Our Women Customers," by Fred Karr, Kansas City, director of public relations, Gas Service Company. J. H. Felgar, dean of the College of Engineering, University of Oklahoma, Norman, told the convention delegates about the gas and electric meter men's schools which are held each year at the University of Oklahoma under direction of the College of Engineering and sponsored by the Oklahoma Utilities Association. These schools, he explained, have been in operation only two years but they have grown each year in attendance and interest until the gas meter men's school has become the largest in the Southwest.

R. C. Sharp of Tulsa, in the president's address, called attention to the fact that Oklahoma in 1924 led all other states in production of natural gas and stood second in the consumption of this natural product. Oklahoma, he said, produced two hundred fourteen billion cubic feet and exported thirty-two billion cubic feet. He also stated that the United States broke its record in gas consumption in 1924, using one billion one hundred forty-one million cubic feet. This figure was 13 per cent above 1923 and 100 per cent above 1924.

#### Sessions of Gas Division

The Gas Division meeting, March 10, was presided over by H. L. Montgomery, Bartlesville, manager Natural Gas Division, the Empire Companies. A. W. Leonard, president Natural Gas

Association of America, talked about the next annual convention of the national association to be held at Tulsa. Addresses were also delivered as follows: "Competition in the Gas Business," R. C. Sharp, Tulsa, vice-president, Oklahoma Natural Gas Company; "Women's Progress in the Public Utility Industry," Elsie Carter, Oklahoma City, local chairman. Women's Public Relations Committee, N. E. L. A.; "Oklahoma Gas Meter School," J. H. Baxter, Oklahoma City, chairman Gas Meter School Committee, and by G. B. Helmrich, Norman, director of the School of Mechanical Engineering, University of Oklahoma. E. P. Campbell, Bartlesville, U. S. Bureau of Mines, also addressed the Gas Division meeting. He explained that the Oklahoma Utilities Association will hold in Bartlesville during the coming summer a gas conservation school which hereafter will be a regular annual feature of the work of the Gas Division of the association.

### The Exhibits

An interesting feature of the convention was the exhibits. The entire fifteenth floor of the Mayo Hotel, which includes twenty-four rooms, was given over to exhibitors. While some of these contained equipment and apparatus for gas companies, most of the exhibits pertained to the telephone and electrical branches of the utility industry.

The convention broke all former attendance records, the attendance passing the 800 mark. It is declared, by all connected with the event, to have been the most successful convention in the history of the association, both in point of attendance and interest in the sessions. On the afternoon of March 10 division sessions were held, every convention room on the sixteenth floor of the big 18-story Mayo Hotel being filled with utility men and women listening to addresses and participating in discussions on matters affecting the particular branch of the industry with which they are connected. Meetings were held that afternoon by the Electric Light and Power, Gas, Telephone, Electric Railway, Public Relations and Manufacturers and Suppliers' Divisions.

The annual banquet attended by 600 utility men and women jammed the immense crystal ballroom to its full capacity. The feature of the evening was the address by Douglas Malloch of Chicago, famous author, poet and lecturer, on the subject of "Husbands and Wives." The address was full of wit, poetry and wisdom. Fred Capshaw, chairman of the Oklahoma Corporation Commission, and George Short, Attorney General of Oklahoma, were among the honored guests at the banquet. Short appeared in the place of Governor M. E. Trapp, who was ill.

The last day was devoted to the report of the manager of the association, E. F. McKay, and to a report on Speakers' Bureau activities by O. D. Hall, assistant manager of the association, and the annual business session.

An interesting feature of the convention was that speakers were furnished by the convention to every civic and business organization which met or held noonday luncheons in Tulsa during the three days of the convention. The association had a closer tie-in with civic and commercial organizations during the recent convention than ever before in its history.

### Election of Officers

The election resulted in the selection of the following officers to serve until the next convention in March, 1927: J. A. Frates, Tulsa, president; Major James H. Buell, Tulsa, first vice-president; L. W. Scherer, Yale, second vice-president; W. R. Emerson, Oklahoma City, re-elected treasurer; E. F. McKay, Oklahoma City, re-elected manager. The following new members of the Executive Board of the association were elected, each to serve three years: Electric Light and Power Division—Major James H. Buell, Tulsa; Gas Division—R. C. Sharp, Tulsa; Electric Railway Division—J. A. Frates, Tulsa; Telephone Division—E. J. Boase, Frederick; Manufacturers and Suppliers' Division—F. B. Hathaway, Oklahoma City; Public Relations Division—R. S. McBeth, Tulsa. The following are division chairmen for the coming year: Electric Light and Power Division—Earl R. Ernsberger, Oklahoma City; Gas Division—H. L. Montgomery, Bartlesville; Electric Railway Division—J. A. Frates, Tulsa; Telephone Division—L. W. Scherer, Yale; Manufacturers and Suppliers' Division—A. D. Peabody, Oklahoma City; Public Relations Division—George A. Davis, Oklahoma City.

## E. F. Putnam to Accept Presidency Greenwich Water & Gas Co.

Wellesley, Mass.—Eben F. Putnam, district superintendent of the Conn. Light and Power Co., in New Britain, will soon relinquish his duties to assume the presidency of the Greenwich Water and Gas Company. He is thirty-four years old, and is probably the youngest president of a large public utility concern in the state today.

The Greenwich Water and Gas Company is capitalized at $3,000,000, and through its subsidiaries, The Greenwich Gas, Greenwich Water, and Port Chester Water Works, supplies gas and water to Greenwich and water to Port Chester and Rye in Westchester County, New York.

## Gas Company to Be Sold

Denver, Colo.—The Grand Junction Gas & Electric Light Company, its electric railway from Grand Junction, Colo., to Fruita, ice plants, and the Palisade Light Company of Palisade, Colo., are to be purchased by the Public Service Company of Colorado, the price to be about $1,500,000.

If the deal goes through, and that is almost certain, the Doherty interests will pipe natural gas from the Garmesa dome, about 30 miles, and the city of Grand Junction will be served with the natural gas. From an electrical standpoint, the acquisition of the Grand Junction company with its auxiliaries gives the Doherty interests a new area, that of the whole of the Grand Valley of Colorado.

# Sales Division Holds First Session

### Listens to Talk on Development and Responsibilities

The first meeting of the Sales Division of the New England Gas Association was held at the Boston City Club on Friday, March 12, 1926. There were about 175 members and guests present when Governor Quinn called the meeting to order. He referred to the recent formation of the New England Gas Association and stated that he believed the opportunities for developing the gas industry in New England were greater than ever before.

The speaker of the evening was Henry M. Brundage, vice-president of the Consolidated Gas Company of New York and also treasurer of the American Gas Association. The speaker in his address, which is printed elsewhere in this issue of the American Gas Journal, in addition to pointing out the responsibilities and opportunities of the gas industry, took issue with Prof. Ripley, whose recent article in the Atlantic Monthly has created so much discussion regarding the issue of non-voting stock in corporations. While Mr. Brundage did not enter into the morals of the habit of issuing such stock, he did object strenuously to public utility operating companies being included in the sweeping condemnation of Prof. Ripley. On account of Mr. Brundage's connection with the financial end of the largest gas company in the United States and also as treasurer of the American Gas Association, he is in a position to know authoritatively regarding the issuance of securities of public utility operating companies and said so in his address in unmistakable terms.

At the conclusion of his address Mr. Brundage was given a rising vote of thanks for his very interesting talk.

### Presentation of Sales Cups

William Gould, ex-governor of the association, awarded the sales cups which had been donated by the past governors to the gas companies making the best showing in the sale of appliances. Four cups were presented, one cup for the company selling the best percentage of gas ranges, one for the best showing in tank water heaters, one for the best showing in automatic water heaters and one for room heaters.

In presenting the cups Mr. Gould stated that the purpose of offering these cups was to stimulate sales. While it is obvious that a company with 1,000 meters or 2,000 meters could not sell as many ranges, etc., as a company with 10,000 or 20,000 meters, a quota was established and percentages were set as a mark to shoot at. The percentage for gas ranges was set at 30 per cent of the total number of meters. The company winning the cup was the Cumberland Light & Power Company of Biddeford, Maine, who sold nearly 8 per cent.

On tank water heaters a quota of 4 per cent was set and the company winning this cup was the Wakefield Municipal Lighting Department of Wakefield, Mass. Their percentage of sales was 4.437.

On the automatic water heaters the Leominster Gas Light Company received the first place with a sale of 2.063 per cent of their meters.

On room heaters the Haverhill Gas Light Company won first place with a sale of 2.111 per cent of their total meters.

* * *

### Lambert Meter Co. Enlarges

The Lambert Meter Company has increased its floor space by 8,000 square feet, making a total now of 22,000 square feet. This space is located in the same building with their present plant, Bush Terminal Building No. 4, Brooklyn, N. Y.

This enlargement was necessitated by the increased production of consumers' meters, diaphragms and meter repairing. The company also makes apparatus such as calorimeters, provers, service cleaners, wet test meters and portable test meters, and also a recording demand flowmeter.

### Pavilion Natural Gas Co. to Build Plants for Manufacture of Artificial Gas

Batavia, N. Y.—Plans are under consideration by the Pavilion Natural Gas Corporation, says the Batavia News, for the establishment of one or two plants for the manufacture of artificial gas in order to relieve the shortage of natural gas. The proposition was brought up at a meeting of the board of directors, held in Pittsburgh, Pa., a few weeks ago and seemed to have considerable support. It was decided to hold a second meeting in the near future at which some formal action will be taken. The meeting is subject to the call of the chair and probably will be held quite soon, according to J. S. L. Purdy, of Rochester, a director.

Although some stock in the Pavilion company is held through Western New York, control is vested in the hands of Pittsburgh capital and the meeting probably will be held in that city. There are seven directors on the board.

About 5,000 customers in Pavilion, Avon, Caledonia, Le Ray, Perry, Warsaw, Mt. Morris and Moscow are served by the Pavilion company. For some time the company has experienced the same difficulty experienced by most other concerns supplying natural gas, a shortage in the winter months, there being no reserve supply. Although the company is constantly drilling new wells, insufficient gas has been found to make a steady flow of sufficient strength. Establishment of a manufacturing plant would solve the problem.

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### To Appraise Public Service (N. J.) Gas Property

With a view to testing the reasonableness of rates, the Public Utilities Commission is at present engaged for the first time in making an appraisal of all the gas properties of the Public Service Electric & Gas Company, as of January 1st this year.

The commission, since 1912, has taken the Passaic division of the gas department as a unit for checking but that division, in the mind of the commission, is no

longer capable of being isolated and used as a test for the fairness of rates.

Colonel Philander Betts, chief engineer of the commission, is making the appraisal and so far has engaged ten experts to assist him. He also is availing himself of the services of members of the commission's staff.

The commission has considered an appraisal of the gas properties of the Public Service essential for many years, but never has been able to make it, due to insufficiency of funds. This year, however, there is an unexpended balance for the fiscal year of around $30,000 and part of that is being used for making the appraisal.

It was explained that the commission is not making the appraisal with a view to launching into a rate case. Rather, the purpose is to compile data which will be available in the future should the necessity of a rate case arise. Without such data the commission is groping in the dark when it comes to a consideration of whether gas rates are reasonable, in view of the value of the investment devoted to public use.

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### Olathe Gas Plant Part of Southwestern Public Service

Olathe, Kans.—The Southwestern Public Service, Inc., which corporation has just purchased the Olathe plant, also owns and operates the gas distributing plants at Coffeyville and Liberty, Kansas.

The same central management controls and operates the Southwestern Gas Company, which has main lines serving towns and industries in Southwestern Kansas including the Kasigan Gas Company distributing system in Independence. The Union Gas and Fuel Corp., which serves Neodosha, Yates Center, Buffalo and Burlington, Kansas, together with many smaller towns and industries along the Missouri Pacific lines.

They are also owners and operators of two extensive natural gas properties in Western Canada serving the cities of Calgary, Edmonton, Lethbridge, and over thirty smaller communities in the Province of Alberta.

# Bill Changes Utilities Law in Washington

Washington, D. C.—An amendment to the utilities law providing that the cost of any revaluation made of gas light, electric light or transportation company shall be borne by the affected company has been sent to Congress, according to officials of the Public Utilities Commission.

Under the provisions of this amendment the commission will be empowered to ask the Washington and Georgetown Gas Light Companies for the $50,000 needed for expert assistance in the revaluation they requested.

The amendment provides that the money so appropriated by the utilities shall be chargeable to their operating expenses and any of the fund left over shall be returned, it is understood.

It further provides that the money may be paid by the utilities in installments and that at any time, when it is seen that the expenses shall exceed the amount estimated by the commission, further appropriations shall be made by the companies.

It is understood that the House Utilities Subcommittee looks favorably on the proposed amendment. Members are quoted as declaring that some such law should be adopted after the position of the commission had been made clear by Major W. E. R. Covell, assistant engineer commissioner.

Covell indicated that if Congress did not pass this amendment, the commission still would make the best revaluation possible with materials and means at hand, but that the responsibility of taking the best care of the public's interests would revert to Congress.

"The adoption of this amendment would certainly enable us to get much more expert advice and assistance in making the revaluation," said Covell, "and unless it is adopted we must take the figures submitted by the companies as a basis for our estimates."

It was indicated that such statistics, furnished by the companies, would necessarily estimate the worth of the properties of the utilities at a much larger figure than would be found by commission employees.

# Pacific Coast Gas Men Meet in California

### Orange Star Plan of A. G. A. Endorsed

The Pacific Coast Gas Association held its Southern California Regional Meeting in San Diego on February 18 and 19. The entire day of the 18th was devoted to committee meetings, there being 106 committee men in the four conferences, while the 19th was devoted to a general meeting of the entire body, at which some 165 were present. A great deal of credit is due M. F. Raber and L. M. Klauber of the San Diego Consolidated Gas and Electric Company for the excellence of the arrangements and to R. S. Ruffin of the same company for the enjoyable banquet program which closed the two days' session. The local company also entertained the visiting delegates at a novel luncheon served in its gas plant, after which an inspection trip was made of the plant and offices.

The Commercial Section of the Association decided that it would not be feasible to hold the educational gas appliance exhibition which it had been proposed to hold in connection with the next convention of the association in Los Angeles. The refusal of this plan makes it no longer necessary that the next convention be held in Los Angeles and it is now proposed to hold the convention in Pasadena next August. Mr. W. M. Thompson of that city was appointed chairman of the Committee on Arrangements. The program for the convention is to be so arranged as to allow more time for discussion of papers and reports than there has been in the past, and section chairmen were instructed to limit their presentations to such papers and reports as are complete and of

sufficient value to warrant their receiving a place on the program.

**To Meet in Arizona.**

Dates for the Arizona meeting in Tucson were tentatively set as April 16 and 17. It is probable that the meeting will be held jointly with the Arizona Utilities Association and indications would seem to indicate that this first association meeting to be held away from the Coast is creating a great deal of interest in Arizona and the neighboring states. The dates for this meeting will be announced definitely next month.

The place of the Northwest Regional Meeting, which will be held either in May or early in June so as to avoid conflict with convention arrangements, was definitely set as Portland, Oregon, and the secretary was instructed to determine a date.

The Orange Star Plan of the American Gas Association was enthusiastically received and endorsed by the Commercial Section, and upon being presented at the general meeting, was assured of the association's whole-hearted support. There are three well-organized groups of appliance men on the Coast who together represent a considerable share of the appliance industry there, and they will be asked to assist the association in its efforts to tie in with the plan and develop it on the Pacific Coast.

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**Janesville Gas Co. Sold**

Janesville, Wis.—Sale of the new gas light company here to the Wisconsin Power and Light Company, an Insull managed utility, operating extensively in southern and central Wisconsin, has been announced.

The gas company is capitalized at $350,000 and owned by the United Gas Improvement Company, Philadelphia.

It will be operated in conjunction with the electric plant, which is also owned by the Wisconsin Power and Light Company.

Physical valuation of the plant is $739,187, according to records of the railroad commission for December, 1924, and total assets $759,976. The plant has been brought up to date by many additions in the last five years.

**New Milwaukee Gas Plant Is Proposed**

Milwaukee, Wis.—A new gas plant, the first unit of which will be built at a cost of $5,000,000 in 1927, is being planned by the Milwaukee Gas Light Co., according to an announcement made by President R. B. Brown. The new plant will be made necessary by huge increases in gas consumption in the territory it covers, Mr. Brown said. The consumption now averages between 22,000,000 and 23,000,000 cubic feet of gas per day.

Steps for expansion were taken following the submission of the company's annual report to the Wisconsin Railroad Commission at Madison, showing 1925 earnings at about 8 per cent, the maximum amount permitted by the Wisconsin public utility law. Earnings are slightly in excess of last year.

**Northern States Shareholders Increase Preferred Stock**

Chicago, Ill.—Referring to the report published recently that Northern States Power Company had filed notice of an increase in its capital stock to $1,200,000, H. M. Byllesby & Company states that shareholders of the company, at their annual meeting in Wilmington, Del., on February 15, authorized an increase in the preferred stock from 500,000 shares to 1,500,000 shares, $100 par value. No change was made in the authorized or outstanding Class A, $100 par value, or the Class B stock, without par value. It evidently was due to combining the three classes of stock and giving the Class B common stock a par value of $100, that the total of $1,200,000,000 was arrived at by the writer of the published report.

## Brooklyn Union Gas Company at Food Show

Brooklyn, N. Y.—Miss Ruth Soule of the home service department of the Brooklyn Union Gas Company gave cooking demonstrations at the gas company booth at the Food show recently held in Brooklyn. She was assisted by Miss Martha Louise Grant.

These demonstrations were particularly interesting to the housewives. Aside from showing the proper preparation of foods, and of dietary values, the young women demonstrated the scientific and economical use of gas appliances.

During each of these demonstrations, and at their conclusion, goodies, pastry and cakes were handed to those who attended. At the same time copies of the recipes used were presented to those who wished them.

The Brooklyn Union Gas Company booth was easily found. It was located near the bandstand and was one of the most beautifully decorated at the show. An artistic array of gas appliances, particularly those used in the home, was on exhibition.

In addition to the cooking demonstrations, the use of up-to-date kitchen appliances, such as gas ranges, hot water heaters, central heating plants, were described and the advantages of gas fuel for the heating of homes were explained.

**Mary E. Dillon Elected Director Brooklyn Chamber of Commerce**

Brooklyn, N. Y.—Election of Miss Mary E. Dillon, vice-president and general manager of the Brooklyn Borough Gas Company, to be a director of the Chamber, has been announced by Ralph Jonas, president of Brooklyn Chamber of Commerce.

**Propose New Gas Plant in Florida**

Leesburg, Fla.—Leesburg drew the attention of outside capital, Maine capitalists taking first steps toward the possible construction of an artificial gas plant in Leesburg. M. G. Scheitlin, secretary of the Chamber of Commerce, speaking about the proposal, said that interested parties were in the city and that the outlook was favorable.

# Gas Research at Hopkins

Baltimore, Md.—For support of gas engineering investigation at Johns Hopkins University, a fund for the coming year has been placed at the disposal of Dr. Wilbert J. Huff, professor of gas engineering.

Salaries and equipment are provided for three full-time workers who will conduct researches into processes of gas manufacture, the production of by-products and better utilization of plant facilities. The workers, under direction of Dr. Huff, will use laboratories of the school of engineering.

The fund has been subscribed by the Consolidated Electric Light and Power Company of Baltimore, the Consolidated Gas Company of New York, the Rochester Gas and Electric Corporation of Rochester, N. Y., and the Mars Company of Oil City, Pennsylvania.

Dr. Huff is a widely-known authority in his field. He graduated from Yale in 1914, receiving the highest honor and special honors in chemistry. He assumed his present chair at Hopkins in September, 1925.

### E. G. de Coriolis Now With Combustion Utilities Corpn.

E. G. de Coriolis is now connected with the Research Institute of the Combustion Utilities Corporation and is at the head of the work being conducted in New England.

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### P. G. E. to Extend Bryte Gas Mains

Bryte, Calif.—Preliminary plans of the Pacific Gas and Electric Company have been made to extend gas mains to provide lighting and heating facilities to this community. Property owners are being canvassed to obtain an adequate number of consumers to warrant the expenditure of $36,400 to extend the mains and build a local distribution system.

E. W. Florence, division manager of the company, said that 153 consumers will have to be obtained before the service can be installed. Work will start as soon as the required number of consumers are obtained.

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### New Rochester Coke Oven Plant Starts Operating

Rochester, N. Y.—The first charge of soft coal has been placed in the new $2,000,000 coke ovens opened by the Rochester Gas and Electric Corporation. The new ovens will manufacture 250 tons of saleable coke and about 5,250,000 cubic feet of illuminating gas daily, it was stated by J. P. Haftenkamp, superintendent of the gas department.

It is expected that these new ovens will double the coke output of the corporation and greatly lessen the results of a future fuel famine to Rochester residents. With the completion of these new ovens, foundations are being laid, for a new plant of twenty-three ovens near the site of the newly completed one. It is expected that this structure will be completed about September 1st.

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### Time-O-Stat Upstairs Clock Control

The Time-O-Stat is an instrument made for the special purpose of rendering it more convenient to tus. The Time-O-Stat is an inuse gas for water heating apparastrument that enables the control of a gas heater located in the cellar, from the rooms above. It saves trips to the basement, for it is possible by means of this instrument to light the gas in the coil heater and to have the gas automatically extinguished after having burned for a certain period of time, as desired, and be sure that at the end of that time the gas will be automatically shut off.

The instrument is therefore of particular value in furthering the use of gas for hot water heating as it tends to make the application of gas for this purpose even more advantageous and more worth while than it now is. It can be installed on any existing water heating system.

The Time-O-Stat Corporation, Milwaukee, Wis., manufacturers of this device, will gladly furnish information on request.

### Iroquois Gas Corporation Files New Rates

Albany, N. Y.—In order to stimulate the use of gas for industrial and commercial purposes, the Iroquois Gas Corporation has filed a new rate, approved by the Public Service Commission, applicable in the counties of Allegheny, Cattaraugus and Erie. The rate is effective immediately. The rate offered is 70 cents per thousand cubic feet for the first 50 M. and 65 cents per thousand cubic feet for all over 50 M. This is subject to a discount of 5 cents per thousand cubic feet for the prompt payment of bills. The standard coal surcharge which is now in effect is also applied to this rate.

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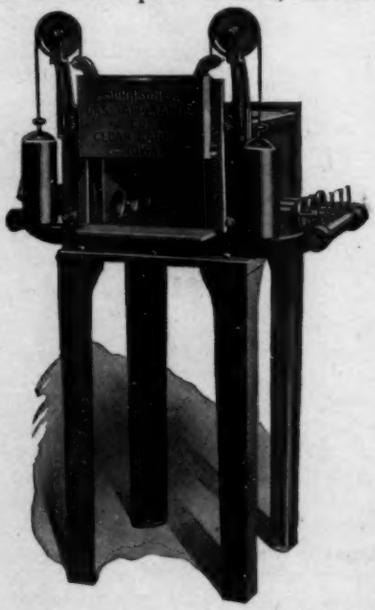
### New Furnace for Carbonizing, Hardening, Annealing, Etc.

The Johnson Gas Appliance Co., Cedar Rapids, Iowa, recently issued a leaflet describing a new furnace for carbonizing, hardening, annealing, etc. This furnace does not require motors, blowers



or air pressure of any kind. The heat can be regulated to a fine degree and any desired temperature maintained up to 2,350 degrees. The firebox is heavily lined with firebrick, has a balanced door and is equipped with six Johnson direct jet burners. Further details of this new Johnson furnace will be sent on request.